



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,588	11/15/2001	Robert J. Clarey	99-PDC-355	4744

7590

07/22/2003

Martin J. Moran  
Cutler-Hammer Products  
Technology & Quality Center  
170 Industry Dr., RIDC Park West  
Pittsburgh, PA 15275

EXAMINER
----------

TIBBITS, PIA FLORENCE

ART UNIT	PAPER NUMBER
----------	--------------

2838

DATE MAILED: 07/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/003,588

Applicant(s)

CLAREY ET AL.

Examiner

Pia F Tibbits

Art Unit

2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-20 is/are allowed.
- 6) ☐ Claim(s) 1,4-10 and 21 is/are rejected.
- 7) ☒ Claim(s) 2,3,11,22 and 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☒ Interview Summary (PTO-413) Paper No(s). 3.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the line terminal and the load terminal must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Specification*

2. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification. For example, the related application cited is now issued as US patent number 6487057.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 4-10, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Shvach et al.** [hereinafter Shvach] [6005757] in view of prior art disclosed by applicant in fig.1 [hereinafter Prior Art].

Shvach discloses a circuit interrupter/circuit breaker comprising separable contacts 44A, 44B, 44C; an operating mechanism 42 for opening and closing said separable contacts; a first trip mechanism/ a first or apprentice trip unit 5 including a trip circuit having a resistor (see also column 10, line 9), which is energized in response to a trip condition/trip signal 40, the first trip mechanism cooperating with the operating mechanism 42 to trip open the separable contacts 44A, 44B, 44C in response to the trip

Application/Control Number: 10/003,588

Art Unit: 2838

condition, and a second trip mechanism/ master trip unit 4, a second trip signal 49 which is also employed to open the separable contacts 44A,44B,44C. Shvach does not disclose a housing, and the resistor having a body that burns open in response to a failure of said separable contacts to trip open.

Prior art discloses a housing made of an electrically insulating material, such as a thermosetting resin (see also page 5 of the specification). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Shvach's apparatus and include a housing, as disclosed by Prior Art, in order to avoid environmental deterioration of the circuit interrupter, as well as hazardous handling.

Official Notice is taken with regard to the resistor having a body that burns open in response to a failure of said separable contacts to trip open since it is well known in the art to use a resistor associated with a circuit interrupter designed to burn out above a preselected amperage in order to protect an electric circuit by disabling it.

As to claim 4, Shvach discloses that circuit breakers are also available which interrupt upon the detection of ground fault currents, therefore acting as a GFCI (see also column 1, lines 34-36).

As to claim 7, Prior art discloses the use of a housing made of an electrically insulating material, such as a thermosetting resin, which could be molded into a case, and absent any criticality, is only considered to be the use of "optimum" or "preferred" material that a person having ordinary skill in the art at the time the invention was made using routine experimentation would have found obvious to provide for the housing of the circuit breaker disclosed by Shvach and Prior Art, since it has been held to be a matter of obvious design choice and within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use of the invention, and since a molded case would be lightweight and cost reducing. See *In re Leshin*, 125 USPQ 416.

5. Claims 5, 6 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Shvach et al.** and **Prior Art**, as described above, further in view of **Kim et al.** [hereinafter Kim][6577478].

Application/Control Number: 10/003,588

Art Unit: 2838

Shvach and Prior Art disclose a circuit interrupter, enclosed in a housing, including a trip circuit having a resistor, which is energized in response to two trip conditions/trip signals. Shvach and Prior Art do not disclose an AFCI device, and a combination GFCI/AFCI device.

Kim discloses in fig.4 an AFCI device, and a combination GFCI/AFCI device. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Shvach's and Prior Art's apparatus and include an AFCI device, and a combination GFCI/AFCI device, as disclosed by Kim in order to provide a circuit breaker with an AFCI and GFCI able to detect an arc fault and ground fault effectively, as well as have a circuit breaker that is relatively small, so that it can be installed easily in a residential or commercial building (see also column 4, lines 40-46).

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

#### ***Allowable Subject Matter***

7. Claims 2, 3, 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In the examiner's opinion, it would not have been obvious to a person of ordinary skill in the art to provide a circuit interrupter comprising, *inter alia*, an operating mechanism including a trip latch; the first trip mechanism including a solenoid having a coil and a plunger; wherein the trip circuit energizes the coil through the resistor in response to the trip condition, the energized coil normally moving the plunger to engage the trip latch to trip open the separable contacts in response to the trip

Application/Control Number: 10/003,588

Art Unit: 2838

condition; the housing has an opening; wherein the trip member has an indicator movable therewith; and wherein the indicator is visible through the opening of the housing with the release of the trip member.

8. Claims 12-20 are allowable. In the examiner's opinion, it would not have been obvious to a person of ordinary skill in the art to provide a circuit interrupter comprising, *inter alia*, a housing; first separable contacts within the housing; an operating mechanism for opening and closing the first separable contacts; a trip circuit including a resistor, which is energized in response to a trip condition, the trip circuit cooperating with the operating mechanism to trip open the first separable contacts in response to said trip condition, the resistor having a body which burns open in response to a failure in the trip circuit; second separable contacts electrically connected in series with the first separable contacts; a movable contact arm having an open position for opening the second separable contacts and having a closed position for closing the second separable contacts, the movable contact arm held in the closed position thereof by the body of the resistor, the movable contact arm being movable to the open position thereof in response to the body of the resistor burning open; and a spring which biases the movable contact arm toward the open position thereof.

9. Claims 22 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In the examiner's opinion, it would not have been obvious to a person of ordinary skill in the art to provide a circuit interrupter comprising, *inter alia*, separable contacts that are first separable contacts; wherein a power circuit further includes second separable contacts electrically connected in series with the first separable contacts between the line terminal and the load terminal; wherein the means for engaging includes a movable contact arm having an open position for opening the second separable contacts and having a closed position for closing the second separable contacts, the movable contact arm held in the closed position thereof by the body of the resistor, the movable contact arm being movable to the open position thereof in response to the body of said resistor burning open; and wherein the means responsive to said means for engaging includes a spring which biases the movable contact arm toward the open position thereof, the means for engaging the body of the resistor includes a

Application/Control Number: 10/003,588

Art Unit: 2838

trip member; wherein the means responsive to the means for engaging is a trip latch; wherein the body of the resistor normally blocks the trip member; and wherein the body of the resistor burns open to release the trip member, in order to trip open the separable contacts through the trip latch.

10. As noted here, and as described in the specification, the claimed invention allows voltage to be transferred to the auxiliary solenoid to activate it and cause the operation of the fail-safe mechanism, when a failure of the electronic trip circuit occurs. The resistor in the electronic trip device is sized so that it is subjected to an over voltage condition upon a failure in the electronic trip circuit. This causes the resistor to fail in an electrically open mode, thereby sending sufficient voltage to an auxiliary solenoid to operate the solenoid. The solenoid then moves a plunger, which activates the fail-safe trip mechanism of the circuit breaker. This trips the circuit breaker, as well as disables the resetting mechanism.

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in PTO-892 and not mentioned above disclose related apparatus: **Pick et al.** [4897758] and **Kussy** [3987340] disclose resistors associated with a circuit interrupter designed to burn out above a preselected amperage; **Runyan** [6420948] discloses a circuit breaker enclosed in casing 20.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Pia Tibbits whose telephone number is (703) 308-7305. If unavailable, contact the Supervisory Patent Examiner Mike Sherry whose telephone number is (703) 308-1680.

13. Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center receptionist whose telephone number is (703) 308-0956. Papers related to Technology Center 2800 applications only may be submitted to Technology Center 2800 by facsimile transmission. Any transmission not to be considered an official response must be clearly marked "DRAFT". The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Technology Center Fax Center number is (703) 308-7722 or (703) 308-7724.

Application/Control Number: 10/003,588

Art Unit: 2838

PFT

July 10, 2003

A handwritten signature in black ink, consisting of a large, stylized 'O' followed by a series of loops and a horizontal stroke.